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against which the body acts; and as the pinion determines the motion of the body, the rollers instead of only going with it, have to slide past it. This union of a rolling with a sliding motion prevents running down, and gives a very smooth motion.

After all the parts are put together; the plate *x x* (by fig. 4) is screwed on to shut up the work and keep it clean.

No. III.

LIFE-APPARATUS FOR SHIPWRECK.

The SILVER MEDAL was presented to Mr. H. HARISON, Newhaven, for his Apparatus for Saving Life in cases of Shipwreck; a Model of which has been placed in the Society's Repository.

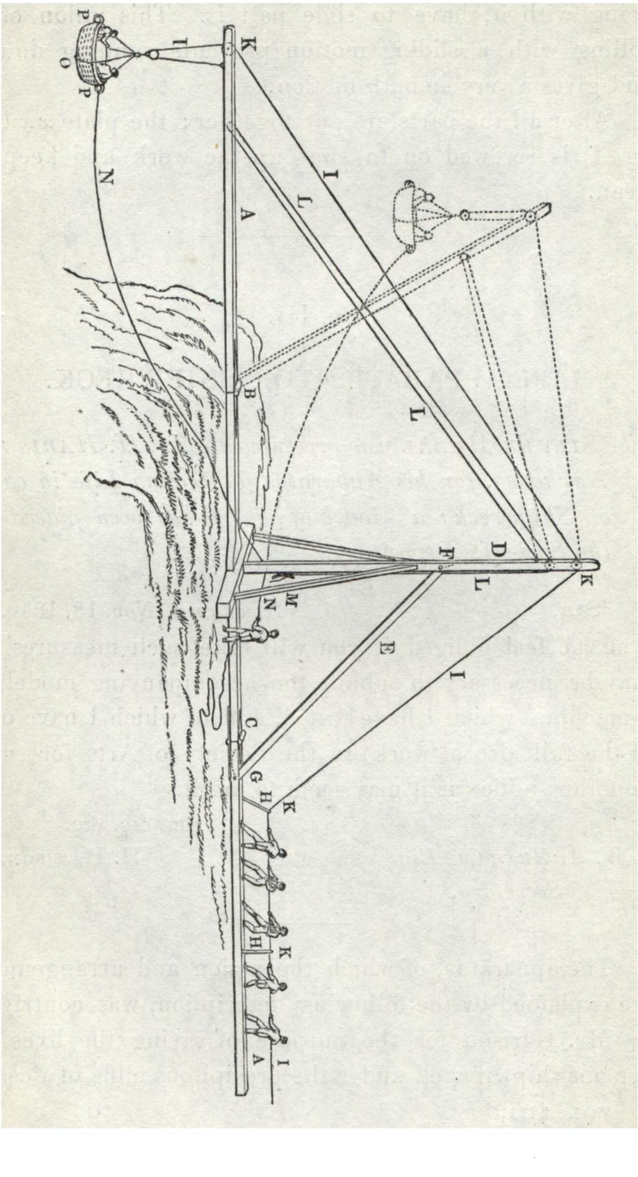
SIR, *Newhaven, Nov.* 18, 1840.

I SHALL feel obliged if you will take such measures as may be necessary to submit the accompanying model of a machine (which I have tested, and of which I have one of the full size at work) to the Society of Arts for such honorary notice as it may seem to merit.

I am, &c. &c.
H. HARISON.

W. A. GRAHAM, Esq.
Secretary.

The apparatus, of which the action and arrangement are explained by the following description, was contrived by Mr. Harison for the purpose of saving the lives of persons shipwrecked under the precipitous cliffs of a coast where there is no beach, or where it is such as to afford no means of escape along shore.



References to the Figure.

A A the plane or bed of the apparatus consisting of three pieces of timber about fifty feet long, hinged together at the joints B C, and thereby rendered capable of being folded into a short length for the convenience of carriage. The upper hinge at C is only a lock, its pin taking out to allow of folding on the under hinge.

D a stanchion, stepped on the centre-piece of the bed, and supported by the tie E at F and G by metal pins secured from loss by chains.

H H rods, through which the hauling line passes, which serve to prevent its loss on a dark night, by keeping it off the ground, at a convenient height for the haulers.

I the hauling line, passing through the crane, stanchion, and rods at K K K K.

L a line, intended to prevent injury to the apparatus while setting up, by permitting the crane to be gradually lowered to the level of the other portion of the plane or bed; and also to facilitate the safe landing of the basket by raising the crane (when the basket has reached the top of the cliff) to the angle of the dotted line, where it is kept by a turn taken on the cleat M; the hauling line may then be slackened while the basket is drawn in by the guy rope N attached to it for that purpose, and also to serve as a warning or communicating line (by being strained on) when the basket should be hauled up.

O the basket, furnished with two lines P P to allow of its being hauled (while suspended) to and fro between a ship and the shore.

The model is constructed on a scale of a quarter of an inch to the foot, and the figure, dressed as an officer, holds the rope N, that he may (when it is strained on) give the word to the haulers.

The working apparatus, when folded up, is very portable.

The following Testimonials accompanied Mr. Harison's Communication.

Bearshide, Nov. 21.

In November 1838, a French vessel, named the Martin de Serzeur, was lost and the crew perished, the sea washing the base of the cliff, the height of which is 115 feet; and I am of opinion that if I had been supplied with Mr. Harison's portable life-apparatus, that I might have succeeded in saving the lives of some of the unfortunate Frenchmen. Mr. Harison has since supplied me with the apparatus, which I have tried, and which I think, in every respect, adapted to the purpose intended, and well worthy of adoption.

George Caswell,
Lieut. R. N., and Chief Officer of the Coast Guard Station at Bearshide.

November 17*th*, 1840.

On the night of the 2d of July, a French vessel was totally wrecked at this station. A communication having been effected by means of "Manby's apparatus," the crew were landed on the beach, but the great difficulty yet remained of conveying them to the summit of the cliff (a height of 140 feet); their state of *exhaustion* being such, that the *ladder* of the apparatus was totally inadequate to effecting that essential purpose. When the tide admitted of the crew of this station reaching them, they were found in such an exhausted and benumbed state, that a very short period more must have terminated their existence; one had already perished; and another, a very old man, from the severity of his bruises, was rendered incapable of mounting the ladder, and escaped only by lashing himself to one of the ropes suspended over the cliff. I am, therefore, most decidedly of opinion, that had Mr. Harison's portable life-apparatus been at hand, they would have been released from their perilous situation in less than half an hour from the time of reaching the shore, instead of being left to *dangle* to and fro over the cliff for full *two* hours.

The invention I think admirable, and most fully calculated for preserving life under the most difficult circumstances wherever cliff stations may demand its use.

HORATIO BLAIR,
Lieut. R. N.

Birling Gap Station,
County of Sussex.

THESE are to certify that so high an opinion do I entertain of Mr. Harison's invention for saving the lives of seamen wrecked on a coast under a cliff, that I despatched a man and horse for the loan of his apparatus during the late gale (13th November, 1840), when three vessels were wrecked between Brighton and Newhaven.

JAMES PRATT,
Lieut. R. N.